ARGONNE NATIONAL LABORATORY REPAIR NEEDS/DEFERRED MAINTENANCE FLOWCHART

JACKIE DEARBORN
Civil Engineer
Infrastructure & Facilities Specialist

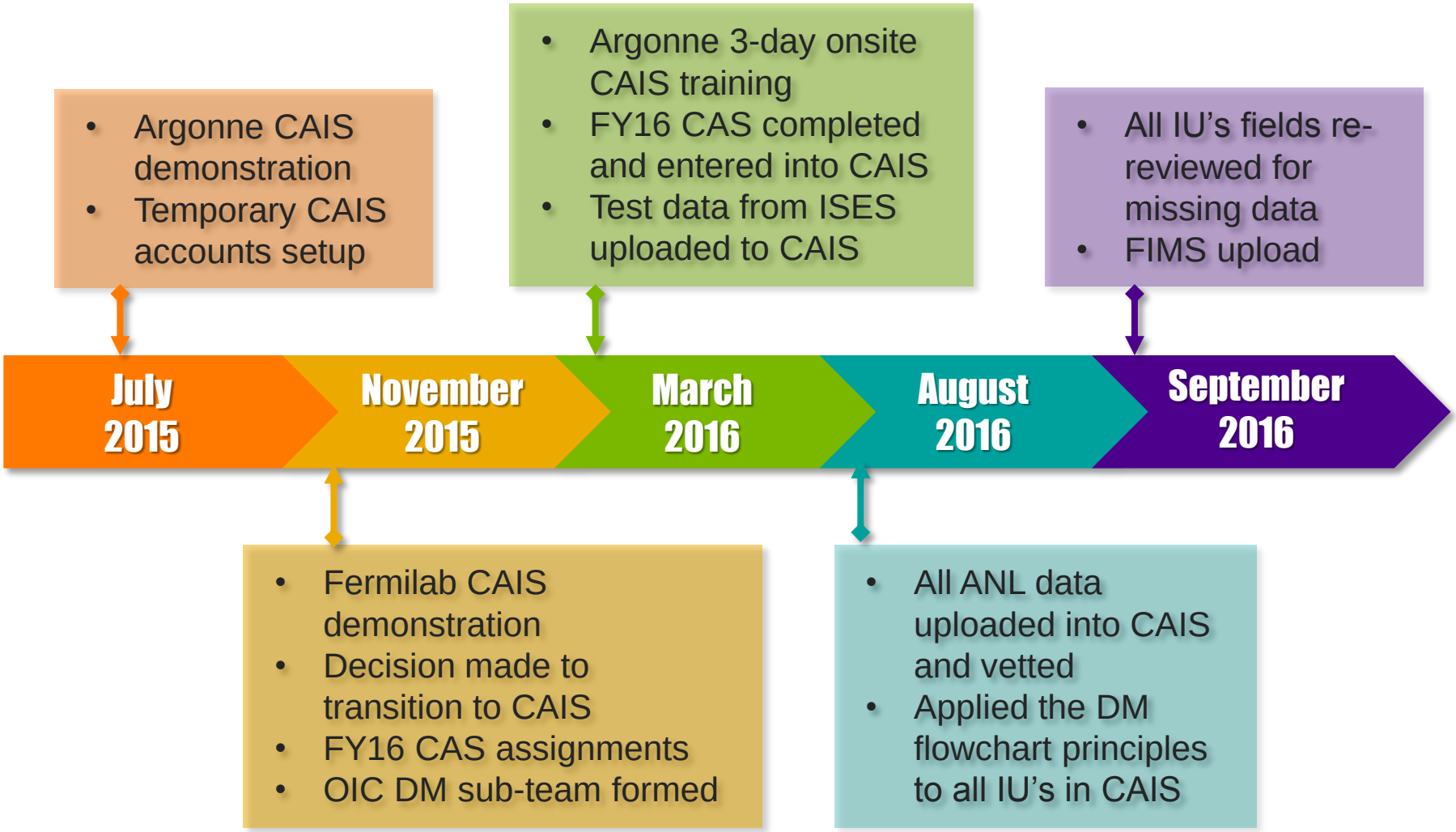
Tuesday, October 18, 2016

OVERVIEW

- Transition Timeline
- CAIS Comparison
- DM Sub-Team Results
- Implementation at Argonne
- Impact to FIMS Reporting
- Analysis & Interpretation

ANL TRANSITION TO CAIS

Timeline



DATABASE COMPARISON

ISES VS. DOE CAIS

ISES	CAIS
▪ Projects ▪ CSI Code ▪ Life Cycle Analysis ▪ Need Year ▪ % Modernization	▪ Inspection Units ▪ Volume/WBS/Component/Type ▪ Condition ▪ DM/RN/MOD Flags

DEFERRED MAINTENANCE SUB-TEAM

(ANL, BNL, INL, JLAB, ORNL, LBL, PPPL)

TASK: To provide a framework and guiding principles to foster consistency among DOE sites to develop and implement site specific Repair Need (RN) and Deferred Maintenance (DM) classification decision making processes.

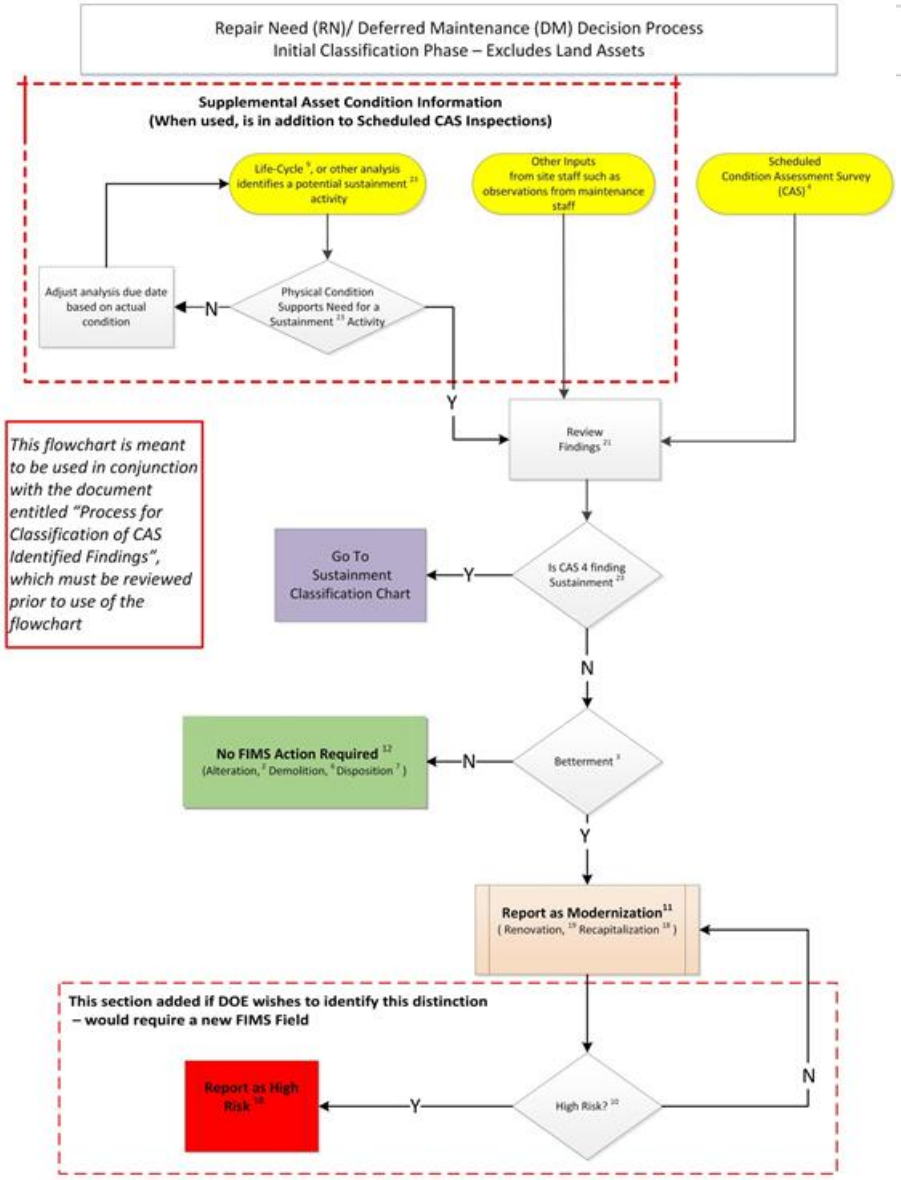
- **Flow Chart:** Guides user to classification decisions for each Condition Assessment Survey (CAS) or other input finding.
- **Supporting Definitions:** Provide a common framework to understand the meaning of the word or phrase.
- **Examples:** Provide further help clarify definitions.
  - Multiple Pump Configurations
  - Roof Replacement
  - Electrical Utility
  - Roadway Repair

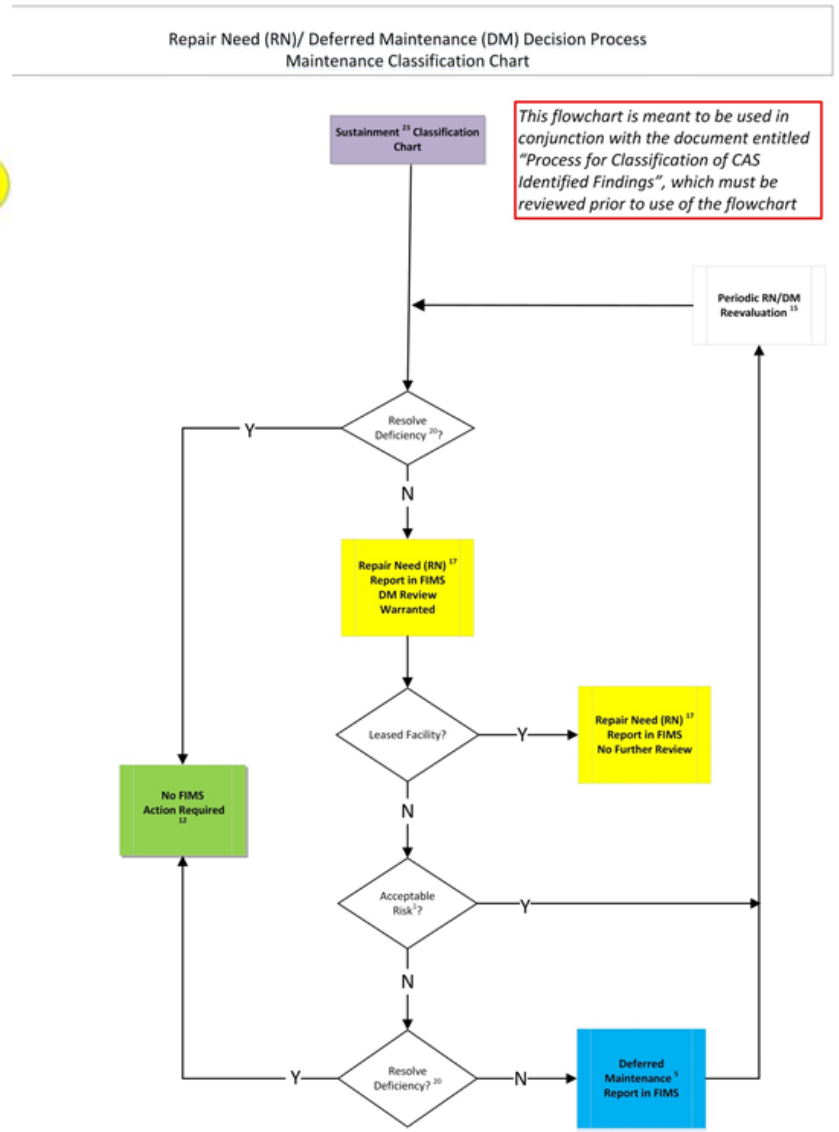
DM DETERMINATION

KEYS TO PROCESSING INPUTS

- **Risk must be considered:** The assumption is that those items which pose the highest risk would be resolved quickly by placing them into a work management system to be addressed. If not, then the work is considered “deferred”.
- **Optimum Period:** If the risk associated with the asset warrants that the deficiency should be addressed now (optimum period) and it is not funded and placed into a work management system for execution then the item should be considered as DM.
- **Review Annually:** DM items must be reviewed periodically to ensure they maintain a level of risk still warranted to be considered as DM. In a similar manner, RN items should be reviewed annually to ensure the level of risk associated with the deficiency has not elevated to an unacceptable level and should be classified as DM.

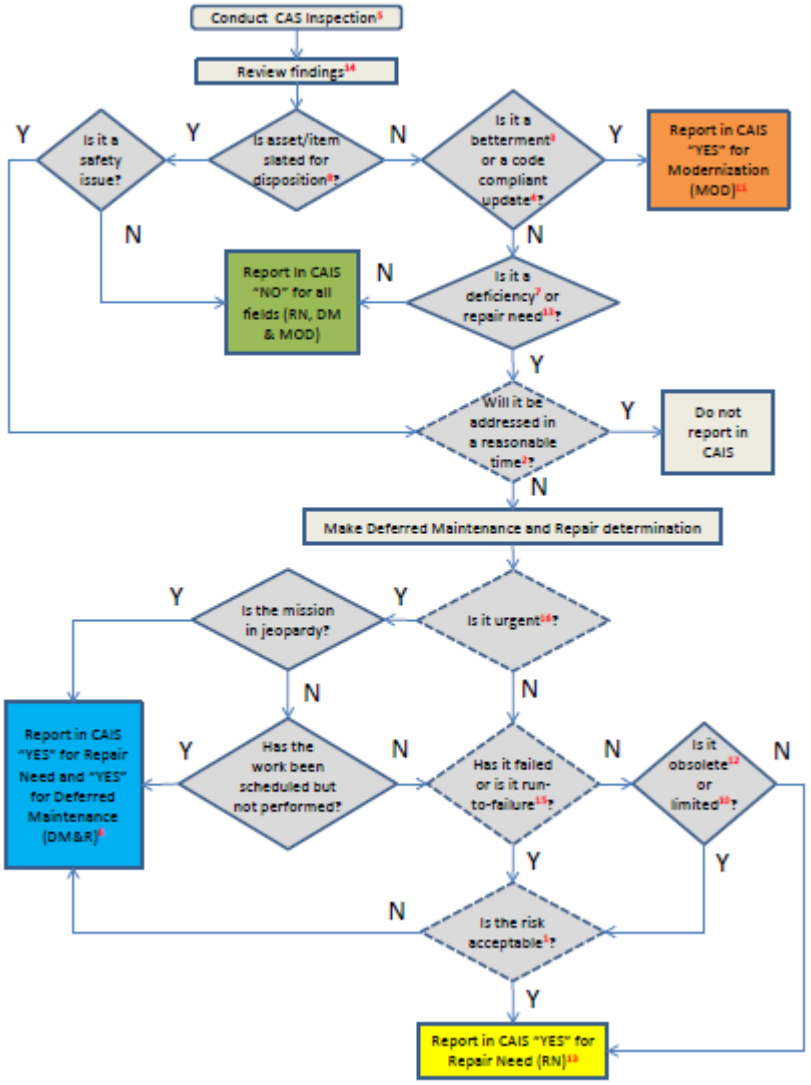
DM SUB-TEAM FLOW CHART





Argonne NATIONAL LABORATORY

ANL CONDENSED FLOW CHART & DEFINITIONS



Repair Needs (RN) and Deferred Maintenance & Repair (DM&R) Flow Chart Definition Table

#	Terminology	Description
1	Acceptable Risk	Management's acknowledgement to forego maintenance. Even though an uncertain event or condition may occur and could have a negative impact on the site's objectives, management has accepted the risk.
2	Addressed in a Reasonable Time	Corrective action tracked, scheduled, and completed in accordance with the schedule or within a time period acceptable to Management.
3	Betterment	Capitalized improvements to facilities that result in better quality work, increased capacity, and/or extended useful life as required to accommodate regulatory and other changes to requirements.
4	Code Compliance Update	Improvements needed to accommodate regulatory and other required changes. A code update is not considered to be Deferred Maintenance & Repair; in most instances it is a Modernization.
5	Condition Assessment Survey (CAS)	Physical condition assessments on each real property asset at least one every five-year period or other risk-based interval to determine the need for some preventative or remedial action.
6	Deferred Maintenance and Repair (DM&R)	Maintenance and repairs (excluding preventive and predictive maintenance) that were not performed when they should have been or were scheduled to be and which are put off or delayed for a future period.
7	Deficiency	The difference between an asset's current physical condition and its most recently configured capacity, efficiency, or capability.
8	Disposition	Those activities that follow completion of program missions, including, but not limited to: stabilization and deactivation; surveillance and maintenance; and decommissioning.
9	Failed	An observable or measurable inability to function at the most recently configured capacity, efficiency or capabilities or within performance tolerances (including safety or environmental).
10	Limited	Technical support, repair services, or replacement parts are scarce, inadequate, or unavailable.
11	Modernization (MOD)	Activities that keep existing facilities relevant and updated in an environment of changing standards and missions. This includes activities that improve quality, increase capacity, extend an asset's useful life, and/or enhance an asset's value.
12	Obsolete	No longer needed due to changes in technology, laws, customs, or operations.
13	Repair Needs (RN)	Means required to restore an asset's component system failures noted during a condition assessment survey to a state substantially equivalent to the most recently configured capacity, efficiency, or capability as required by mission.
14	Review CAS Findings	DOE real property assets must be sustained by maintenance, repair and renovation activities. CAS findings are reviewed to determine if the finding is a sustainment activity and should be reported to DOE as a Modernization (MOD), Repair Need (RN) or Deferred Maintenance and Repair (DM&R).
15	Run-To-Failure	A low risk, easily repaired, or easily replaced asset. A run-to-failure asset is not considered to be Deferred Maintenance & Repair.
16	Urgent	Negatively impacts environment, health, safety, and security.

FIMS REPORTING SCORECARD

FY15	Updated 11/24/15						
SITE	DM	REPAIR	RN/DM RATIO	SF	AVG AGE	$DM / SF	$ Repair / SF
ANL	**$119,972,377**	**$229,648,408**	**1.91**	**4,835,844**	**40**	**$ 24.81**	**$ 47.49**
AMES	$ 1,435,428	$ 1,740,746	1.21	327,664	53	$ 4.38	$ 5.31
FERMI	$ 45,537,061	$ 45,537,061	1.00	2,451,419	40	$ 18.58	$ 18.58
BNL	$136,783,996	$410,852,259	3.00	4,855,214	43	$ 28.17	$ 84.62
LBL	$ 95,405,715	$298,716,517	3.13	1,728,849	43	$ 55.18	$ 172.78
PPPL	$140,515,545	$141,286,595	1.01	766,181	42	$183.40	$ 184.40
ORNL	$164,562,735	$286,078,410	1.74	3,965,119	38	$ 41.50	$ 72.15
SLAC	$ 27,529,057	$131,263,941	4.77	1,605,567	38	$ 17.15	$ 81.76
TJ	$ 5,890,654	$ 27,349,257	4.64	876,084	23	$ 6.72	$ 31.22
PNL	$ 4,216,201	$ 13,972,499	3.31	527,806	11	$ 7.99	$ 26.47

FY16	Updated 10/7/16						
SITE	DM	REPAIR	RN/DM RATIO	SF	AVG AGE	$DM /sf	$ Repair / SF
ANL	**$ 43,762,095**	**$227,939,797**	**5.21**	**5,310,576**	**43**	**$ 8.24**	**$ 42.92**
AMES	$ 1,307,156	$ 1,307,156	1.00	15,831,175	52	$ 0.08	$ 0.08
FERMI	$ 39,582,278	$ 39,582,278	1.00	2,451,101	41	$ 16.15	$ 16.15
BNL	$125,334,234	$493,457,043	3.94	4,861,237	44	$ 25.78	$ 101.51
LBL	$267,156,793	$379,718,811	1.42	2,031,882	44	$131.48	$ 186.88
PPPL	$118,911,309	$133,014,497	1.12	766,181	43	$155.20	$ 173.61
ORNL	$203,692,789	$347,758,070	1.71	5,559,731	35	$ 36.64	$ 62.55
SLAC	$ 28,435,478	$161,618,428	5.68	1,705,886	38	$ 16.67	$ 94.74
TJ	$ 4,666,940	$ 22,651,353	4.85	963,811	24	$ 4.84	$ 23.50
PNL	$ 3,454,356	$ 12,482,409	3.61	2,307,602	26	$ 1.50	$ 5.41

ANL SCORECARD

FIMS reporting

YEAR	MOD	DM	REPAIR	RATIO RN/DM	$ DM/SF	$ Repair/SF
FY 2014		$112,614,173	$213,070,047	1.89	$23.72	$44.88
FY 2015		$119,972,377	$229,648,408	1.91	$24.81	$47.49
FY 2016	$55,727,411	$43,762,095	$227,939,797	5.21	$ 8.25	$42.97

(MOD + DM) = $99,489,506 2.29 $18.73

ANALYSIS

ANL FY16 Results

- So what do our new numbers mean?
  - DM reduced by ~80M
- Ratio RN/DM increased from 1.91 to 5.21
  - Implies DM risk is going down; future maintenance liabilities impending
- DM & RN alone may not be telling the full story
  - Consider MOD as DM: new DM total is $ 99.5M (overall reduction of only $20.5M)
  - Adjusted ratio if MOD & DM combined: 2.29

DISCUSSION

Food for thought…

- Is risk being captured correctly?
  - According to flow chart and definitions…yes
  - But MOD has DM components
- How should MODs be captured if they also include RN or DM?
  - Create duplicate IUs
  - Capture DM component as a % of MOD (give example)
- How does MOD impact DM?
  - Artificially lowering the true DM of the Lab
  - Over-reporting DM if all MODs are flagged as DM